

# 2023 ANNUAL REPORT



*Standard Mammoth Reach Investigation. Images provided by the CDA Trust.*



**Basin Environmental Improvement Project Commission**  
**March 2024**

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[Lower Canyon Creek Riparian Area. Images provided by the CDA Trust.](#)

## *Executive Summary*

The Basin Environmental Improvement Project Commission (BEIPC) is responsible for coordinating environmental remediation to address heavy metal contamination, natural resource restoration and water quality in the Coeur d'Alene Basin (Basin). The BEIPC also participates in guiding and coordinating infrastructure upgrades and improvements to protect the environmental cleanup remedy and enhance living conditions in the communities of the Basin. The Basin is defined as the watersheds of the Coeur d'Alene River (CDA River), Coeur d'Alene Lake and the Spokane River within the Idaho Counties of Shoshone, Kootenai, and Benewah, as well as the Coeur d'Alene Tribal Reservation within Idaho.

During Calendar Year 2023, the BEIPC coordinated and monitored accomplishments by various implementing entities for environmental remediation and natural resource restoration work included in the BEIPC 2023 Annual Work Plan and the five-year operating plan. During this timeframe the 2024 Annual Work Plan and an updated five-year plan were also developed. The environmental remediation work was performed through the federal Comprehensive, Environmental Response, Compensation and Liability Act (CERCLA) Program, the State of Idaho environmental cleanup programs, and actions under the direction of the Environmental Protection Agency (EPA) by the Coeur d'Alene Work Trust (Trust) formed under the ASARCO Bankruptcy settlement. Natural resource damage restoration work was performed by the Coeur d'Alene Basin Natural Resource Trustees (Restoration Partnership) which includes the Coeur d'Alene Tribe (CDA Tribe), State of Idaho Department of Environmental Quality (IDEQ), Idaho Department of Fish and Game (IDFG), U.S. Fish and Wildlife Service (USFWS), Bureau of



Land Management (BLM) and the U.S. Forest Service (USFS). The Panhandle Health District (PHD) continued to manage the Institutional Controls Program (ICP) to control the release and migration of contamination remaining in place after remediation.

## *BEIPC Overview*

The BEIPC was established by the Idaho State Legislature and implemented through a Memorandum of Agreement (MOA) among implementing parties. The BEIPC's primary purpose is to work with the EPA and IDEQ to implement the Interim Record of Decision (ROD) for OU-3 throughout the Basin and implement the Interim Upper Basin ROD Amendment (RODA) for portions of OU-3 and OU-2 to advance the remediation of heavy metals contamination in the Upper Basin (confluence of the North and South Forks of the CDA River to the head waters of the South Fork above Mullan).

The Basin is considered to be Operable Unit 3 (OU-3) of the Bunker Hill Mining and Metallurgical Complex Superfund Site originally listed on the CERCLA National Priorities List in 1983. Operable Units 1 and 2 (OU-1&2) are the populated, industrial, and undeveloped areas in a 21 square mile area encompassing the communities of Pinehurst, Smelterville, Wardner, and Kellogg and outlying Shoshone County lands known as the "Bunker Hill Box". OU-3 includes the remainder of the site outside the Box in the Basin where contamination has come to be present.

In addition, the BEIPC is involved in:

- Assisting the EPA in developing and managing the Superfund Cleanup Implementation Plan (SCIP), a comprehensive cleanup plan for the Upper and Lower Basins based on remedies selected in the OU-3 ROD and Upper Basin RODA,
- Coeur d'Alene Lake management planning and implementation,
- Heavy metal contamination remediation efforts at mining sites in the North Fork of the CDA River (NFCDR),
- Assisting the Restoration Partnership in the implementation of their natural resource restoration program as provided for in the CDA Basin Restoration Plan; and
- Leading multi-agency coordination in addressing potential flooding in the South Fork CDA River (SFCDR) and Pine Creek drainages.

Legislation and the MOA creating the BEIPC authorized appointment of a seven-member board comprised of:

- Four members from Idaho, one representing the state, and one each representing the county commissions from Shoshone, Kootenai, and Benewah Counties, appointed by the Governor of Idaho.
- One representative of the state of Washington appointed by the Governor of Washington.
- One representative appointed by the Council of the Coeur d'Alene Tribe.
- One federal representative of the United States appointed by the President.

In 2023, Terry Harwood, the longtime Executive Director for the Basin Environmental Improvement Project Commission retired. The new Executive Director of the Basin Commission is Sharon Bosley. She took over the leadership role in September of 2023.

BEIPC Board of Commissioners:

Name	Title	Representing
Leslie Duncan Chair	Kootenai County Commissioner	Kootenai County
Brook Beeler Vice Chair	Regional Director, Washington Department of Ecology	State of Washington
Jess Byrne Secretary/Treasurer	Director, Idaho Department of Environmental Quality	State of Idaho
Casey Sixkiller	Regional Administrator EPA, Region 10	Federal Government
Dave Dose	Shoshone County Commissioner	Shoshone County
Caj Matheson	Coeur d'Alene Tribal Council Member	Coeur d'Alene Tribe
Philip Lampert	Benewah County Commissioner	Benewah County



North Idaho Fair Informational Booth. Picture provided by PHD.

## Program Management

The BEIPC operates in accordance with the Idaho statute and the MOA among the governing entities. It is responsible for coordinating the activities of federal, tribal, state and local government agencies implementing the ROD for OU-3 and the Upper Basin RODA for human health and ecological remediation activities. It is also involved in the efforts by the Restoration Partnership to restore natural resources in accordance with their CDA Basin Restoration Plan. Working through the implementation and management of Institutional Controls in the Box and Basin (ICP), the BEIPC coordinates efforts to protect the cleanup remedies, human health, and the environment from the release and migration of contaminants.

The Executive Director (ED) works with the seven governmental entities and their agencies to establish annual work plans, manages the activities and programs of the BEIPC, works to expand community involvement in the Basin work and assists governments and partners on various projects at their request. To assist the ED in program management, planning, and implementation, the states of Idaho and Washington, the EPA, the Coeur d'Alene Tribe and the Counties have provided volunteer staff "on loan" to coordinate with the ED and provide routine intergovernmental input on technical and policy issues. Other support groups include the Technical Leadership Group (TLG) and the Citizen Coordinating Council (CCC).

### Technical Leadership Group (TLG)

The TLG is the BEIPC primary technical advisory group. It is comprised of federal, state, local and tribal representatives as well as interested private citizens serving on the Project Focus Teams (PFTs) who provide expertise in science, engineering, logistics, regulatory aspects, and land management in the Basin. The TLG advises the BEIPC on work planning and implementation while striving toward consensus-based recommendations. In 2023, the ED and

TLG developed the 2024-2028 Five-Year and 2024 draft work plans to implement the remedy in OU-2 and 3.

In addition to providing technical assistance, practical knowledge, and to assure projects are coordinated with BEIPC activities, the TLG members schedule meetings to provide a forum for discussions on individual project affects, discuss opportunities to minimize impacts to affected stake holders and exchange information.

#### November 2<sup>nd</sup>, 2023

The TLG sponsored an in-person/virtual meeting in Coeur d'Alene. The meeting provided updates on the South Fork of the Coeur d'Alene River Basin Environmental Monitoring Program (BEMP) data collection efforts as well as 2023 Bunker Hill Superfund Site (BHSS) construction activities. The state also provided an update on the Coeur d'Alene Lake Advisory Committee (CLAC) project status which provided up to \$33 million towards projects that both reduced phosphorus and addressed follow-up recommendations from the National Academy of Sciences recommendations for Coeur d'Alene lake. Updates were also provided by the Restoration Partnership addressing the newly selected restoration projects and a Recreation site update for the Basin.

#### Citizen Coordinating Council (CCC)

The CCC serves as the main avenue for public input into the BEIPC activities. It is comprised of politically and geographically diverse members and was established to provide local citizen review and input on Basin related work to the BEIPC.

The CCC facilitated communications to its members and the public on an as-needed basis by e-mail, flyers, newspaper ads and posting to the BEIPC website and EPA Facebook. Throughout 2023, the CCC relayed information to its members and the public regarding activities in the Basin.

In addition to receiving various reports for review and comments, CCC members were involved in the following BEIPC activities in 2023:

#### July 27<sup>th</sup>, 2023

The CCC sponsored an in-person/virtual meeting in Kellogg in collaboration with EPA to discuss Waste Disposal Area information. Topics included an introduction to the Bunker Hill Superfund Site; Waste Management Strategies, overview of existing repositories and Waste Consolidation Areas (WCAs); and monitoring, operation, and closure procedures. Summary meeting notes can be located on the BEIPC website at [www.basincommission.com](http://www.basincommission.com).



November 29<sup>th</sup>, 2023

At the November BEIPC meeting, the CCC reaffirmed that the CCC would continue to concentrate on holding special meetings to discuss specific issues and keep the CCC members informed of activities through the extensive mailing list maintained at the BEIPC office. A link to a CCC survey was provided at this meeting and through EPA's November Basin Bulletin. This survey will provide the BEIPC with important information on community interests, needs and concerns.

## *Public Outreach and Citizen Involvement*

### BEIPC Community Involvement Activities

During Calendar Year 2023, all BEIPC meetings were held in person with a virtual option available at the November meeting. The BEIPC maintained an up-to-date Basin website at: [www.basincommission.com](http://www.basincommission.com). Meeting information was announced on the website, and at the BEIPC office in Kellogg, Idaho. The BEIPC also participated in public education/outreach efforts. The joint information booth at the North Idaho Fair was provided and occupied by representatives from the various government agencies participating in the Basin.

In addition, the various governmental entities represented by the BEIPC continue to support the TLG and CCC by being involved in the activities of those groups. Their involvement includes meeting with citizen groups, giving technical presentations, participating in Basin events, holding tours of Basin project areas, updating information throughout the Basin, and publishing various documents to provide updates on Basin activities.

As part of the public outreach program, the Basin Commission continued to make numerous presentations to local business and community groups concerning activities of the BEIPC which include planned cleanup actions and activities required to protect the remedy, human health, and the environment. The following is a partial list of BEIPC community involvement activities throughout the year:

- Attended the Silver Valley Transportation Team meeting numerous times to update them on Superfund activities in the Silver Valley and impacts on transportation facilities.
- Met with Kootenai County TLG representatives to brief them on issues before each BEIPC meeting.
- Operated the booth on several occasions at the North Idaho Fair.
- Attended the Idaho Four Counties Natural Resource Committee meetings to update them on cleanup actions and discuss other topics of concern.

- Participated in The Confluence Project working with close to 300 high school students in a yearlong program educating them on their local watershed through on-site studies and classroom work.
- Contributed to Our Gem Collaborative working to preserve lake health and protect water quality by promoting community awareness of local water resources through education, outreach and stewardship.
- Published three articles in the CDA Press through the Our Gem collaborative that were specific to BEIPC work.
- Regularly attended the Coeur d'Alene Chamber Natural Resource Committee. The ED was elected the board secretary for the committee in 2024. In addition, presented at the October monthly meeting on BEIPC activities.
- Posted BEIPC and CCC meeting dates and agendas to the BEIPC website, newspaper press release, and with assistance from EPA and IDEQ through social media and informational flyers.
- Shared reports and activities updates, meeting notices, and work plans to TLG and CCC members by email for review and comment.
- Shared BEIPC related information with the EPAs Community Involvement Coordinators (CICs), IDEQ and the Lake Management Plan (LMP) staff for publication on their Facebook pages.
- Continued to update the BEIPC website. The website provides information to keep the public informed including how to become involved and participate in the process; and opportunities for the community to provide input. Updates, including agendas and summary minutes of quarterly meetings, are posted to the website at [www.basincommission.com](http://www.basincommission.com).



*Lake City High School at The Confluence Project Water Quality Field trip to Corbin Park. Images from BEIPC.*

## EPA Community Involvement Activities

EPA Region 10 makes coordinating with local communities and residents a priority. The cleanup team wants to give people meaningful opportunities to be involved in and informed about the cleanup. EPA's many community involvement activities are done in partnership with others, including the IDEQ, BEIPC, and PHD. We are happy to report another productive year of important community involvement accomplishments in the Basin. Highlights include:

- EPA continued to follow its Community Involvement Plan (CIP) for the cleanup: <https://semspub.epa.gov/src/document/10/100137919>. The plan lays out how community members can get information and be involved, summarizes local concerns, and give input. It also outlines how EPA collaborates with its partners. Many local people helped develop this plan.
- EPA continued to partner with the CDA Trust, IDEQ and PHD to increase public health messaging and education related to limiting exposures to heavy metals. New health signs continue to be posted around areas commonly used for recreation. About 70 signs have been placed to date.



*Example health sign. Image provided by BEIPC.*

- The agency produced the document *Coeur d'Alene Basin Cleanup: 2023 Construction Season Preview*. It gave an overview of investigations to design protective cleanups and cleanup activities for the year. EPA distributed it widely to partners and community members.

- EPA worked with the U.S. Geological Survey to produce the document *Frequently Asked Questions about water quality in the Coeur d’Alene Basin area*. It answers questions related to USGS’s annual surface water sampling in the Basin.
- The agency, in coordination with its partners, conducted outreach on several projects this year, distributing flyers locally: *Hecla Star Complex*, *Gray’s Meadow Agriculture to Wetland Conversion Project*, *Ninemile Basin seasonal cleanup activities*, and *Trucks Resume Hauling to Lower Burke Canyon Repository*. Outreach was also conducted for lead health education, soil testing and property cleanups, recreation and health, repositories, the Gray’s Meadow agriculture to wetland conversion project, and more. EPA also produced a handout for participants on the BEIPC August 2023-cleanup tour, and a fact sheet on a study to monitor swan health.

In addition to the above, EPA continued the following activities in 2023:

- Maintained the **Coeur d’Alene Basin Facebook** page which provides site updates to the public. Find it at [www.facebook.com/CDAbasin](https://www.facebook.com/CDAbasin). The page offers site news, photos, and resource information. EPA invites participation, suggestions, and postings, and shares partners’ posts.
- Published the **Basin Bulletin** newsletter in March, July, and November. The Basin Bulletin provides news and updates about the Coeur d’Alene Basin Cleanup.
- Provided staff support and regular participation at meetings of the BEIPC, CCC, and TLG in keeping with EPA’s commitment to the BEIPC process. In 2023, BEIPC quarterly meetings were held both in-person and virtually.
- EPA continued to maintain the website for the Basin Cleanup. It offers the public access to updates, site documents, and background information. Suggestions for improvements are always welcome. (Website URL: [www.epa.gov/superfund/bunker-hill](https://www.epa.gov/superfund/bunker-hill))
- EPA maintained document collections related to the cleanup at several area libraries for public access: Wallace Public Library, Spokane Public Library, St. Maries Library, and Kellogg Public Library.
- Project managers met as requested with local officials, interest groups, and others to provide updates and answer questions in 2023.
- EPA continued to work with the media in 2023, arranging press availability sessions as needed, fielding questions from reporters about the site, running newspaper display ads, and issuing press releases on high-interest activities.

### IDEQ and Panhandle Health District (PHD) Community Involvement Activities

IDEQ and PHD conduct education, public engagement, and health awareness activities related to the CDA Basin cleanup. Kellogg PHD is the primary partner for health messaging and outreach through the Lead Health Intervention Program. The aim is to raise awareness about lead intervention and to support the continuation of healthy trends for children, families, and visitors to the area.

The following are highlights of 2023 activities:

- Taught ICP course for the North Idaho College's Annual SafetyFest.
- Guest lecture at Gonzaga's School of Nursing (Spring & Fall).
- Restocked Play Clean Brochures in local laundromats and other public locations.
- Attended Idaho's Lead Advisory Committee Meetings, providing updates on Lead Health Intervention Program (LHIP) events and outreach activities. Discuss statewide activities.
- Attended Community Based Marketing Training workshop & consultation for ways to improve community outreach efforts.
- Presentation and site tours provided to new Kootenai Health Resident Doctors.
- Participated in Lower Basin Waste Consolidation Area planning meetings.
- Hosted a booth at City of Coeur d'Alene's Earth Day event.
- Presented and provided site tour to PHD's Health Promotions Team for lead awareness training.
- Collaborated with HUD and Idaho Housing and Finance Association (IHFA) to discuss HUD housing in the BHSS and provide lead awareness training.
- Presented to Kootenai County Realtor's Association on ICP and site history.
- Attended Silver Valley Chamber meetings to give updates on 2023 remedial activities and site projects.
- Attended Silver Valley Economic Development Council Meetings to give updates on 2023 remedial activities, site projects and outreach activities.
- Provided education and 578 giveaway bags to preschool through third grade classes at 6 different local schools and at the Harrison School District Health Fair for K-8th grade students.
- Hosted three public meetings for proposed ICP Rule/Statute changes.
- Presented to PHD's Nurse Family Partnership team about lead awareness and testing.
- Conducted Annual Blood Lead Screening Event (6-day event).



- Hosted and manned a booth at the North Idaho Fair (10-day event).
- Present at the Spring, Summer, and Fall Basin Environmental Improvement Project Commission Meetings.
- Hosted pizza parties and provided educational materials to residents at the Canyon Side and Amy Lyn Apartments.
- Met with Shoshone County's newly appointed County Commissioners and provided information about ICP services and LHIP programs.
- Presented to PHD's Board of Health on results of annual lead screening event.
- Hosted booth at Shoshone Medical Center's Kid's Health Fair, providing each child with bag of educational information, goodies and healthy snacks. Also hosted a soil shop, provided blood lead testing, and water sampling and provided additional blood lead screening services.
- Posted flyers for EPA's work projects throughout the year.
- Disbursed Basin Bulletin and EPA project updates throughout site. EPA released three Basin Bulletins in 2023: March, July, and November.
- Presented and provided site tour for area teachers for continuing education credits.
- Attended Silver Valley Transportation Team meetings.
- Tours of the Central Treatment Plant were provided to multiple groups.
- Hosted a booth and provided education about the ICP to attendees of PHD's All District Staff Meeting.
- Hosted a booth at Silver Mountain's Halloween Trunk or Treat event.
- Attended EPA meetings on identifying a Lower Basin Waste Consolidation Area.
- Attended Silver Valley Chamber of Commerce Members Meet and Greet.
- Attended Silver Valley Economic Development Council's Uptown Kellogg Revitalization Meetings.
- Attended Community Improvement Coordination Meetings.



*Trunk or Treat picture provided by PHD.*

- Attended joint meetings between Idaho Department of Health and Welfare's Childhood Lead Poisoning Prevention Program and Pediatric Environmental Health Specialty Units to provide knowledge about lead related topics and concerns.
- Conducted 20 in-home follow-ups for individuals with high blood-lead levels or elevated house dust.
- Provided additional blood-lead testing to area residents at the June and October Kellogg Elks Blood Drives.
- Assisted the City of Osburn with their Arbor Day tree planting event, providing clean barrier material, a handwashing station, and giveaways.
- Hosted a booth at the Health and Wellness Expo at the Kootenai County Fair Grounds providing outreach and educational materials to attendees.
- Conducted a lead safety video contest for area high school students.
- Hosted a booth at the Shoshone County Senior Health Fair providing education and outreach to attendees.
- Provided education, outreach materials, and giveaways to Mullan's Jeep Jamboree participants.
- Attended Kellogg School District's All-Class Reunion, providing educational information on the clean-up to attendees.
- Created new brochures for use during 2023 and 2024.
- Hosted a lead safety poster contest for area first through third grade students in conjunction with Lead Poisoning Prevention Week. Posters submissions were displayed at PHD's Kellogg Office.
- Provided area schools with posters and stickers to highlight National Handwashing Week.
- Attended South Fork Watershed Advisory Group meetings throughout the year.
- Present at the Kellogg Realtor's Surf and Turf training event.
- Presented at the Bonner County Blood Lead Testing Initiative training to provide continuing education credits to local health care providers.
- Presented to Liz Bryan with the University of Idaho.
- Hosted a booth at the Silver Valley Care's Event at Kellogg Park.
- Did class presentations for Wallace Junior High history classes.
- Met with PHD Epidemiology Team to provide update on lead health education and follow ups.

## *2023 Work Accomplishments Part 1: Work Performed Through Federal Superfund or Other Cleanup Programs*

### Lead Health Intervention Program (LHIP)

Screening of children for elevated blood lead levels has been occurring annually in the CDA Basin since 1996. For children with elevated blood lead levels, follow-up consultations from a public health professional are available through the Lead Health Intervention Program to assist families with identifying ways to reduce lead exposures. The screening program also informs the Basin cleanup efforts, although cleanup decisions are not based on annual blood lead testing results. The goal is to prevent lead exposures that could result in elevated blood lead levels.

The following table shows the Basin Blood Lead summary results from 2018 – 2023 for children residing in the Basin 6 months through 6 years of age.

Year	2018	2019	2020*	2021**	2022**	2023
Number of Children	88	84	4	19	40	94
Minimum (µg/dL)	1.4	1.9	1.9	<1	<1.0	1.0
Maximum (µg/dL)	9.0	14	6	7	30	7
Average (µg/dL)	2.4	2.5	3.5	1.9	4.2	2.0
Geometric Mean (µg/dL)	2.0	1.9	3.1	1.5	2.2	1.8

\*2020 screening event was cancelled due to the Covid-19 pandemic.

\*\*Venous Test Results Only. In 2022 an additional 61 children had capillary test results, 51 of which were below detection (<3.3 µg/dL) and 46 older participants had capillary test results, 38 of which were below detection.

On October 28, 2021, the CDC lowered the blood lead “reference value” (BLRV) from 5.0 µg/dL to 3.5 µg/dL. PHD uses this new lower reference value for all follow-up calls and offers for in-home consultations. Historically PHD has used the Lead Care Plus model of machines for analyzing the capillary draws which has a minimum detection limit of 1.9 µg/dL. A recall of test kits for the Lead Care Plus machines issued on May 7, 2021, made test kits unavailable by the time of our 2022 screening. As an alternative, two Lead Care II model machines, which have a minimum detection limit of 3.3 µg/dL, were used. Because of this higher detection limit, venous drawings were encouraged. This higher detection limit impacted overall averages for the 2021 and 2022 events. A total of 101 children between 6 months to 6 years were tested in the Basin

but due to the use of alternative machines and higher detection limits, only venous results are reported above. Test kits for the Lead Care Plus machines have since been replenished.

In 2023 the LHIP offered three additional blood lead testing events, providing area residents with even more access to blood lead screenings. These events included the Kellogg Elk's Club Blood Drives held in June and October and the Shoshone Medical Center Kid's Health Fair in September. In total, the LHIP interacted with approximately 350 individuals during 2023. Out of those individuals, 160 Basin residents and recreators were tested within the Basin at our various events throughout the year. Of those event participants, 98 were children between the ages of 6 months and 6 years, 12 were children over 6 years of age, and 50 were adults. There were an additional 164 tests performed for residents of the Box at these events.

When an individual is identified with an elevated blood lead level, it is recommended their physician be notified and PHD will make an appointment for an in-home visit to identify potential sources of exposure in and around the home<sup>1</sup>. These in-home consultations help PHD, and individual families, identify ways to reduce exposure risks. In addition, PHD can help identify potential exposure pathways that the cleanup project can address to prevent future lead exposures.

PHD will continue to offer free blood lead screening for residents living within the Bunker Hill Superfund Site boundaries year-round. In addition, PHD is planning to conduct its annual summer screening in 2024 with a \$50 incentive for children between ages 6 months to 6 years of age.

In 2023, the LHIP will continue to offer these additional services:

- HEPA vacuum loan program for cleaning residences.
- Free supplies to aid homeowners in performing safe home renovations and/or dirt disturbance activities.
- Education, outreach, and awareness for parents, children, community members, recreationalists, and visitors.
- Education classes and hands-on activities in local schools for Pre-K thru 12<sup>th</sup> graders.
- Education and outreach at community events.
- Presentations and tours to community members, medical residents, and realtors, educating on the importance of lead exposure prevention.

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<sup>1</sup> The Panhandle Health District (PHD) offers a follow-up consultation if any child has a blood lead level greater than 3.5 µg/dL, the "reference value" established by the Centers for Disease Control & Prevention (CDC) in 2021.

- Sampling of soil, dust, paint, water, and other media as appropriate.

#### Basin Property Remediation Program (BPRP) including Private Drinking Water Supply

Sampling and cleanup of residential, commercial, common-use areas, and rights-of-way (ROWs) continued in 2023 as part of the Bunker Hill site's Basin Property Remediation Program (BPRP). IDEQ implements this program in OU-1; the CDA Trust implements this program in OU-3.



*Looking South. Completion of nuclear density testing. Image provided by CDA Trust.*

#### **BPRP in the Box**

To date, a total of 3,236 properties have been remediated in the Box with no new BPRP properties being completed in 2023. As was reported in 2022, IDEQ continued to track the remaining nine Box properties that require remediation in case the current owners grant access, or the property changes owners.

#### **BPRP in the Basin**

The CDA Trust completed the following BPRP activities in 2023:

- Maintained six reverse osmosis, under-sink water filtration systems to treat drinking water from private sources.
- Collected 55 soil samples from two residential properties.
- Collected three private drinking water samples from one property.



- Remediated four residential and commercial properties amounting to a total of 0.98 acres cleaned up during the Fall construction season. This resulted in 45 truckloads of waste being disposed of in site repositories.

At the conclusion of 2023, a total of 3,935 properties have been remediated in the Upper and Lower Basin of OU-3. 202 properties remain to be sampled whose owners have directly refused or have not responded to multiple requests for access, and of these, 38 are estimated to require remediation.



*Inside garage. Excavating up to 12-inches.  
Photo used by permission of the Coeur d'Alene Trust.*

### Contaminated Waste Disposal and Management

Contaminated waste disposal and management is an ongoing process at the Bunker Hill site that must meet the demand for the disposal of historic mining related contamination generated under various remediation programs and under the Institutional Controls Program (ICP). Facilities to accommodate disposal of these wastes are engineered and constructed to reliably contain materials and prevent contaminants from being released to surface water, groundwater, or air in concentrations that will cause state and/or federal standards to be exceeded. Without the expansion of existing disposal facilities or the construction of new facilities, continued remediation and control of contamination could be compromised and potentially stopped.

### Three Categories of Facilities

The contaminated waste disposal and management program currently includes a three-part approach and category of facility to safely dispose of site-generated waste. Facilities in current use and development include the following:

- Repositories that are large, centrally located areas within the Upper and Lower Basin where contaminated soil and material excavated during remedial and ICP actions are transported to be managed and secured.
- Waste Consolidation Areas (WCAs) in the Upper Basin located adjacent to or near specified remedial action source areas.
- Community Fill Plan (CFP) areas developed in recognition that the ICP allows use of contaminated soils for fill material to create more developable ground in the Upper Basin. Agreements between waste generators and property owners with space available to use the contaminated fill in compliance with the ICP are approved by EPA, IDEQ, and PHD.

### Repositories

Five repositories received remedial action and ICP waste in the 2023 field season. The Big Creek Repository (BCR) and the Big Creek Repository Annex (BCRA) near the community of Big Creek and the Lower Burke Canyon Repository (LBCR) serve the Upper Basin, and East Mission Flats Repository (EMFR) near Cataldo serves communities in the Lower Basin. The Page Repository, located near Smelterville, receives remedial action and ICP wastes generated by the cleanup activities conducted in the “Box.” All but Page are operated by the CDA Trust. Both IDEQ and the CDA Trust direct waste to the repositories to minimize transportation distances and costs. In addition, the Page Repository continues to use recycled construction materials extracted from Box and Basin waste streams which helps to further reduce repository operating costs. The water quality monitoring program found operations at all repositories have not impacted adjacent surface or ground waters. A summary of activities completed in 2023 at each repository is described below:

### Lower Burke Canyon Repository (LBCR)

- In 2023, LBCR received 1,699 truckloads from ICP for a total waste placement of 9,500 cubic yards (cy). LBCR currently has approximately 1,028,025 cy of capacity left for disposal.
- Stabilized slopes by track walking.
- Created low area sump near decontamination pad to ensure that runoff from the asphalt area is contained on site.

- Constructed drainage swale around south end of fill limits to collect any runoff during rain on snow events.
- Crowned center of waste area to encourage drainage to runoff collection ditches.
- Installed additional storm water management controls including shredded wood and silt fencing on steep slopes to further protect against erosion.
- The ICP disposal area will not be available to receive ICP waste through the winter months because of heavy snow accumulation in Burke Canyon. ICP waste will instead be directed to BCR for disposal.



*Lower Burke Canyon Repository. Image provided by the CDA Trust.*

#### Big Creek Repository (BCR)

- In 2023, the BCR received 480 truckloads from the ICP, for an estimated 3,300 cubic yards (cy) of waste placed on the east slope.
- At the end of the 2023 construction season, the BCR contained approximately 683,137 cy of waste. BCR currently has approximately 83,022 compacted cy of capacity left for disposal.
- Year-end repository shutdown activities were completed and included:
  - All road surfaces were graded and sloped inward to collect runoff to capture and prevent ponding.

- Waste was graded and sloped inward to collect runoff to capture into roadside ditches.
- The ICP area is managed by the CDA Trust's Operations Contractor during the winter closure period. Prior to spring runoff, all ICP waste resulting from winter operations will be transported and stockpiled on top of the BCRA repository for processing and future placement and compaction.

#### Big Creek Repository Annex (BCRA)

- In 2023, the BCRA received 90 truckloads from the ICP for an estimated 765 cy of waste placed and compacted. This repository has approximately 168,696 cy of capacity remaining.

#### Page Repository

- In 2023, construction of cell #4 continued.
- Page received 4,472 truckloads of ICP waste, including 1068 truckloads of concrete and 205 loads of woody debris. The total estimated volume of material placed at Page in 2023 based on the year-end survey was 18,900 cy. Page has approximately 468,000 cubic yards of remaining waste capacity.

#### East Mission Flats Repository (EMFR)

- In 2023, the EMFR repository received 2,481 truckloads from the ICP and 49 truckloads from the BPRP and recreational site remediation.
- Final in-place, compacted volume calculated from truckload count was approximately 14,100 cy. EMFR currently has approximately 148,860 cy of capacity left for disposal.
- Semiannual groundwater monitoring was conducted at six monitoring wells located on or near EMFR. Groundwater and surface water monitoring results indicate that disposal activities have not impacted water quality near the site.
- The ICP disposal area will be available at the east end of EMFR to receive ICP waste during the winter closure period and managed by the Trust's Operations Contractor. Prior to spring runoff, all ICP waste will be transported and stockpiled on top of the repository for processing and future placement and compaction.

#### **Waste Consolidation Areas**

Waste consolidation areas are located near, and accept waste from, specifically identified sources such as mine and mill site remedial actions implemented by EPA, the CDA Trust, and IDEQ. Unlike repositories, footprints of WCAs are developed using current and near future

waste estimates from nearby remedial action project areas and are constructed to be open for a shorter period. WCAs are only expanded if additional wastes are encountered during the selected remedial actions. The following two Upper Basin WCA's were operated in 2023:

*Canyon Complex Repository and Waste Consolidation Area (CCR/WCA)*

- Initial construction was completed in 2022 on the CCR/WCA which is located southeast of the LBCR. This site was developed to receive waste from nearby source remediation sites and other mine remediation areas.
- No waste materials were placed in the CCR/WCA in 2023. The total volume of material placed in the CCR/WCA to date is approximately 604,000 cy.
- In 2023, minor operations and maintenance work including maintenance of Best Management Practices was conducted at the site.

*East Fork of Ninemile Creek Waste Consolidation Area (EFNM WCA)*

- 2023 was the second year of construction of the Phase 2 Final Cover and Expansion effort primarily focusing on waste placement and compaction. The final expansion will increase capacity at the EFNM WCA to allow placement of approximately 640,000 cy of contaminated waste rock and mine tailings from ongoing EFNM projects.
- In 2023, the EFNM WCA received approximately 303,000 cy of waste from remedial actions in EFNM drainage resulting in an approximate compacted volume of 243,000 cy. The total volume of material placed in the WCA to date is approximately 1,123,000 cy. Temporary cover materials were placed over the contaminated waste rock and mine tailings at the WCA prior to winter shutdown.
- To date, the EFNM WCA site has generated approximately 350,000 cy of rock and 375,000 cy of soil for EFNM remedial actions. Having the location of this waste disposal area near the source areas has saved the project upwards of approximately \$8.5 million in transportation costs and significantly minimized traffic through local communities.



*East Fork Ninemile Waste Consolidation Area. Image provided by the CDA Trust.*



## Additional Disposal Locations

### Community Fill Plan Areas

No CFP areas were developed in 2023.

### Mullan ICP Transfer Station

The CDA Trust operates the Mullan transfer station which provides the city of Mullan residents with a convenient place to dispose of their ICP wastes which are then permanently disposed of in a locally engineered facility (e.g., the BCRA or LBCR).

In 2023, 170 truckloads of waste were transported from the Mullan ICP Transfer Station to the LBCR. Also in 2023, 15 truckloads of concrete waste were transported from the Mullan ICP Transfer Station to the Page Repository for disposal.

### New WCA

In 2023, a PFT evaluated potential locations proposed by EPA during a public comment period on, and to consider alternative locations for a new WCA to dispose of waste generated from Lower Basin remedial actions. EPA is giving full consideration to the analyses performed by the PFT before making a decision. The Lower Basin WCA site has not been approved by EPA.

### Upper Basin Remedies

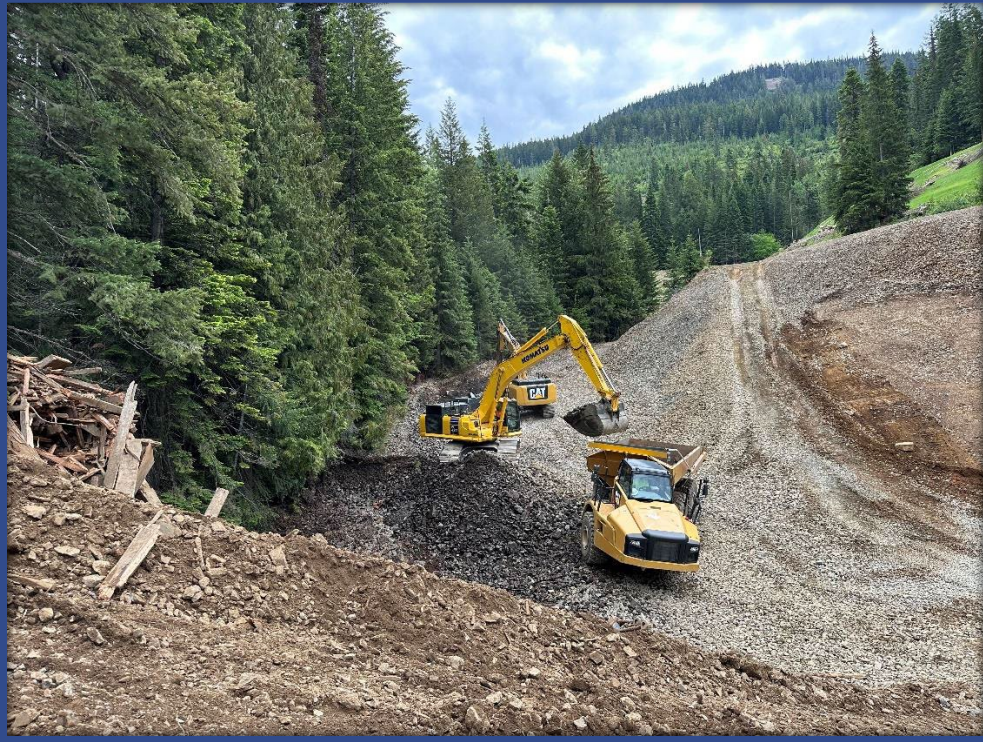
The 2012 Upper Basin RODA identified cleanup work in the Upper Basin. The goals of the 2012 Upper Basin RODA cleanup include prioritizing Upper Basin/Box source areas for cleanup to improve water quality and address risks to human health and the environment. It called for cleanup in the Box that would improve water quality in the South Fork Coeur d'Alene River. It also focused on source control actions that address particulate lead which poses a risk to human health and ecological receptors. The prioritized cleanups under the 2012 Upper Basin RODA will continue to reduce human and wildlife risks to lead and other heavy metal exposures in the Upper Basin and are expected to significantly improve water quality. Upper Basin cleanups complement those in the Lower Basin by reducing the overall loading of contaminated materials to the Coeur d'Alene Basin watershed and the potential for recontamination in the Lower Basin.

### East Fork Ninemile Creek Drainage (EFNM)

The following summarizes the 2023 construction activities conducted in EFNM:

- Approximately 147,500 cy of contaminated waste rock and mine tailings were hauled from the Dayrock Mine and placed and compacted at the EFNM WCA. In addition, approximately 160 feet of West Fork Ninemile Creek, 378 feet of EFNM Creek, and 2,190 feet of Ninemile Creek stream channel were re-constructed as part of the project.

- Approximately 155,500 cy of contaminated waste rock and mine tailings were hauled from the Tamarack Complex and placed in the EFNW WCA. In addition to the removal of mine waste rock and tailings approximately 290 feet of tributary channel was re-constructed within the Tamarack Complex.



*Tamarack rock dumps post excavation 2023. Provided by the CDA Trust*

Other activities conducted in 2023 included the following:

- Operation of the EFNW WCA (see separate section in this report titled “Contaminated Waste Disposal Areas and Management”).
- Continued surface water monitoring in the EFNW Basin.
- Operations and maintenance (O&M) of the Interstate Callahan Mine Rock Dumps, the Success Mine Complex, Interstate Millsite and Rex Mine No. 2/ Sixteen-to-One.

### **Canyon Creek Drainage**

In 2023, activities in the Canyon Creek drainage consisted of the following:

- Approximately 1.7 acres of mine waste rock and tailings were regraded and capped with clean soil at the Star Complex. In addition, site infrastructure upgrades, including 16 dewatering wells, were installed throughout the site to support continued remedial action in 2024.
- Conducted characterization and sampling activities at the Frisco Black Bear Reach (7 sites) located in the upper reaches of Canyon Creek.
- Conducted characterization and sampling activities at the Gem Complex (4 sites) located in the upper reaches of Canyon Creek.
- Conducted characterization and sampling activities at the Standard-Mammoth Reach (10 sites) located in the upper reaches of Canyon Creek.
- Conducted initial characterization and sampling activities at the Lower Canyon Creek Riparian area (5 sites) located in the lower reaches of Canyon Creek.
- Continued surface water and ground water monitoring in the Canyon Creek Basin.
- Continued development of the Canyon Creek Quarry (CCQ). The CCQ will supply clean aggregate materials to future Canyon Creek remedial action projects.
- Completed the design for the Flynn Mine and Black Bear Fraction project to support future cleanup.

Other activities conducted in 2023 included the following:

- Operation of the Canyon Complex Repository/WCA (see separate section in this report titled “Contaminated Waste Disposal Areas and Management”).



*Hecla-Star hydroseed application. Images provided by the CDA Trust.*

### Lower Basin Remedies

The cleanup described in the 2002 OU-3 ROD for the Lower Basin includes actions for the wetlands and lateral lakes, the riverbanks, splay areas, and riverbed. These remedial actions, envisioned primarily as pilot studies, are being evaluated for implementation. The remediation objectives in the Lower Basin include reducing risks to human health and wildlife by reducing exposure to particulate lead and improving habitat quality in the CDA River system. Remedies that address human health or ecological exposure, coupled with continued evolution of our understanding of sediment transport and recontamination in the Lower Basin, are interconnected with natural resource restoration actions.

### Gray's Meadow Remedial Action and Restoration

In 2023, EPA continued work on the Gray's Meadow (formerly Black Lake Ranch) project. Gray's Meadow is a collaborative effort between the EPA, the CDA Trust and the Restoration Partnership with Idaho Department of Fish and Game as the landowner, to remediate and restore approximately 700 acres of publicly owned contaminated agricultural land to clean, diverse, productive wetlands and riparian waterfowl/wildlife habitat.

In 2023, progress on the Gray's Meadow project included:

- Cultural resource monitoring activities for both the Cave Lake and Lamb Peak Wetlands.
- Localized dewatering of the Cave Lake and Lamb Peak Wetlands.
- Construction of two water control structures in Cave Lake Wetland.
- Excavation and placement of contaminated soils.
- Construction of restoration habitat features, including loafing islands and pond features.
- Construction of water control embankments.

In 2023, there was a Lower Basin Project Focus Team meeting held to discuss upcoming work plans for 2024.

For more information on restoration projects that were implemented (or initiated) in the Lower Basin, please refer to the Restoration Partnership section of this report.





*Water Control Structures under construction in the Cave Lake Wetland of the Gray's Meadow Project*



*Embankments and habitat features under construction in the Lamb Peak Wetland of the Gray's Meadow Project*



### Lead Bioaccessibility

In 2023, EPA continued studies related to lead bioaccessibility and amendments, as well as metrics for measuring lead exposure in waterfowl as discussed in the BEMP section of this report. Several studies were completed or are ongoing including:

- A bench-scale treatability study with EPA's Office of Research and Development (ORD) to explore the application of jarosite-based remediation technologies to significantly decrease lead (Pb) bioavailability in contaminated soils. Bunker hill soils were included among other Superfund site samples and treated using jarosite-based techniques via batch and soil column approaches, followed by subsequent speciation and X-ray mapping analyses at advanced synchrotron facilities. These data will be paired with in-vitro bioaccessibility and mouse model in vitro bioavailability measurements to determine pre- and post-treatment efficacy. The research will enable continued development of PLJ-based remediation technologies as well as facilitate future field application. This is building off previous published work from ORD (DOI: 10.1021/acs.est.1c06067).
- Field studies measure the effects of oxidizing and reducing conditions in seasonal wetland sediments on lead bioaccessibility.
- Field studies identify non-invasive biological metrics for monitoring tundra swan and wood duck lead exposure by accurately tracking ranges within the basin and measuring lead concentrations in sediment, feces, egg shells, and blood.

### Dudley Reach Pilot Planning

To address source control in the river channel, planning for the Dudley Reach pilot riverbed remediation project continued in 2023. The location is downstream of the grade break near River Mile 160, near the site of a former dredging operation. The riverbed footprint is over 1,200 acres, spanning 37 river miles and contains approximately 5-10 million cubic yards of contaminated sediment. EPA has developed several alternatives for testing in the Dudley Reach, including capping, dredging and riverbed weirs. A Draft Riverbed Management Plan was completed in 2021 that describes an approach for the entire Lower Basin riverbed below Cataldo and divides the riverbed into sediment management areas (SMAs) as a starting place to conceptualize addressing the riverbed source areas throughout the channel and help facilitate remediation planning. Remedial technologies were assessed for potential effectiveness primarily focused on lead load reduction, system responses (changes in flood water levels), and implementability. The approach includes an initial integrated remediation scenario for the entire riverbed.

In 2023, the CDA Trust completed a 30% design for the Dudley Reach Scour Hole Pilot Project that combines multiple remedial technologies, including bank stabilization measures and dredging and capping contaminated riverbed sediments.

### River Channel Data Collection

In 2023, data collection efforts associated with the river channel included the following:

- Boat-based river sampling of suspended sediment and surface water at 78 locations on the Coeur d'Alene River from Harrison to the Mission Boat Launch.
- Riverbank erosion pin monitoring at 5 locations in the Dudley Reach. Samples were collected to characterize riverbank soils.
- Work in the Cataldo Reach included:
  - Monitored erosion pins installed in past years at 28 riverbank locations.
  - Soil sampling for metals analysis from the bank face at 35 riverbank locations.
  - Surface soil composite sampling for metals analysis at riverbed and island locations.

### State of Washington Projects

The Department of Ecology completed a comprehensive sampling event for the Spokane River beach sites. Samples were collected of beach material, suspended sediment (quality and quantity), and surface water at three locations during three flow regimes (low, medium, and high). Beach material was also evaluated using x-ray fluorescence. The sampling event ran from September 2022 through September 2023. Results will be made available to the public in 2024.

### Recreational Sites

Work on Recreation Areas in 2023 included sampling, remediation, and public education/outreach activities for areas in both the Box and Basin.

#### Signage

In 2023, one new sign was installed at a Lower Basin location. Three signs that were installed in previous years in the Lower Basin had to be replaced due to vandalism. Locations included boat launches, informal river access points, and beach areas.



*Sign at Cataldo Bridge. Image provided by CDA Trust.*

### Box Activities

EPA, DEQ, and PHD continued public outreach efforts to inform recreational users of ways to protect their health when recreating in areas where they may be exposed to contaminated soils and water. A volunteer trail system created by public use on IDEQ's property located north of the Shoshone County Airport in Smelterville has become increasingly popular over the past few years and was beginning to show signs of barrier deterioration. Due to the increased use an enhanced trail barrier consisting of compacted gravel was installed in the fall of 2023. Additional health signage will be installed in the Spring of 2024.

### Basin Activities

The 2023 cleanup work in the Basin focused on the following Lower Basin recreation sites:

- EPA completed the remaining cleanup work at the informal recreation site at the beach across from Black Rock Trailhead.
- EPA and the CDA Trust coordinated with the Tribe to install riparian plantings to discourage access through contaminated soils at Tribally owned parcel near the Cataldo

bridge along the Trail of the Coeur d'Alene's. Initial actions such as this will continue to be evaluated in areas where ongoing recontamination due to flooding is a concern.

EPA and the CDA Trust continued to evaluate other recreational areas in the Upper and Lower Basin for future cleanup work.



*Beach across from Black Rock Trailhead  
Photo used by permission of the Coeur d'Alene Trust. Photo taken by Jennifer Crawford*

### Basin Environmental Monitoring

The Bunker Hill Basin Environmental Monitoring Plan (BEMP) Workgroup continued in 2023 as an annual forum to share basin-wide monitoring results and planning amongst partner agencies. This workgroup includes IDEQ, USGS, USFWS, the Coeur d'Alene Tribe, the Coeur d'Alene Trust, and EPA.

### BEMP Programmatic Planning

An updated BEMP programmatic plan was finalized in 2021 and provides the framework for ongoing remedy effectiveness and long-term monitoring associated with actions in the Upper and Lower Basins. The goal of the updated and optimized BEMP is to design efficient data collection plans to support site-wide management decisions. The BEMP incorporates adaptive management principles and is anticipated to evolve during the remedy implementation timeframe. The over-arching plan includes the Site-wide Quality Management Plan (completed in 2015) and media-specific Quality Assurance Project Plans (QAPPs).

Under the updated BEMP programmatic plan, monitoring is structured into three geographically based tiers:

- Site-specific Remedial Action (RA) effectiveness and performance monitoring.
- Area-wide monitoring.
- Basin-wide long-term monitoring.

In 2023, the area-wide Canyon Creek RA Effectiveness Monitoring Plan was finalized. The objective of this area-wide monitoring is to demonstrate how remedy effectiveness is making progress towards the Remedial Action Objectives (RAOs) within the Canyon Creek Basin. Similarly, an area-wide plan for the Lower Basin is being drafted and anticipated to be finalized in 2024. Area-wide monitoring occurs after completion of the highest priority RA(s) within the Area, according to the following general schedule: surface water (years 1-5), suspended sediment (years 1-5), and fish / benthic macroinvertebrates (years 4-5).

A programmatic Data Management Plan (DMP) for the Bunker Hill Site was finalized in March 2023 with partners from the CDA Tribe, USGS, IDEQ, USFWS and CDA Trust. The DMP provides guidance on data requirements for all entities collecting environmental data supporting the Site. Human health related LHIP data, limited access BPRP, and ICP data will not be included in this database and instead maintained in existing IDEQ systems. Data upload to Scribe.net continued in 2023 and work began on an internal and public access data viewing platform. Until these tasks are complete, stakeholders can make specific data requests to the EPA Remedial Project Manager associated with the work being conducted (Jennifer Crawford). Data management is an ongoing process that requires utilization of an interagency workgroup for implementation to ensure consistency, completeness and consensus of data warehoused.

Throughout 2023, the USGS, IDEQ, USFWS, CDA Trust and EPA continued BEMP sampling. Specific sampling activities are outlined below.

### Surface Water

In 2023, the USGS collected water-quality samples from 20 sites as part of the surface-water BEMP. Four sites in OU-2 were sampled twice. Sixteen sites in OU-3 were sampled under a variable frequency schedule ranging from four to twelve times per year. Sampling up to twelve times per year is expected to help better characterize conditions in the Lower Basin and inputs to Coeur d'Alene Lake, which was recommended in the 2022 report from the National Academy of Sciences, Engineering, and Medicine (<https://nap.nationalacademies.org/catalog/26620/the-future-of-water-quality-in-coeur-dalene-lake>).

Samples were collected during a range of hydrologic events: peak runoff conditions in early May, high snowmelt runoff in late May, baseflow conditions in September, and a fall rain event in November. All samples were analyzed for nutrients, selected trace metals and major ions,



and suspended sediment. In addition, 20 samples were analyzed for total and filtered mercury, and 16 samples were analyzed for constituents (dissolved organic carbon and additional cations and anions) needed for the biotic ligand model to calculate the state of Idaho copper criteria. Three OU-3 sites were also sampled two additional times (during winter low flows in January and runoff recession in July) to help evaluate efficacy of the groundwater collection system.

Twelve of the sixteen OU-3 sites are collecting continuous streamflow data and are telemetered with real-time streamflow access. Information can be viewed at <https://waterdata.usgs.gov/id/nwis/rt>. All gaging station stream discharge and water-quality records for the BEMP gages for water year 2023 are worked up, approved, and furnished electronically at <https://waterdata.usgs.gov/id/nwis/current/?type=BEMP>. The annual data summaries will be completed and delivered to EPA during the first quarter of calendar year 2024.

In 2022, the USGS collected discharge measurements and water-quality samples from nine surface-water sites during the August seepage study in the SFCDR between Kellogg and Smelterville. The study was designed to quantify post-remedy groundwater loading to the SFCDR from the Central Impoundment Area (CIA) and was compared to results of a parallel study (<https://doi.org/10.3133/sir20195113>) conducted in September 2017 prior to installation and operation of the groundwater collection system. The 2022 seepage study report was published in December 2023 (<https://doi.org/10.3133/sir20235125>). In summary, the results show a reduction in groundwater loads of dissolved zinc (86%), dissolved cadmium (81%), and total phosphorus (88%) entering the SFCDR compared to 2017. This indicates that the groundwater collection system at the CIA reduced loadings of trace metals and phosphorus to the SFCDR, which have implications for improved water quality downstream in the main-stem Coeur d'Alene River and in Coeur d'Alene Lake.

## Groundwater

Groundwater monitoring in 2023 was the second year of baseline data collection following implementation of the Groundwater Collection System (GCS) at the CIA, and completion of the prescribed optimization period. The GCS completed construction in December 2019 and operated under an optimization period through Fall 2021, at which point operation and maintenance responsibilities were transferred to IDEQ. During high flow conditions in May of 2023, 72 groundwater sites were sampled including 59 monitoring wells, 4 piezometers, and 9 extraction wells. During base flow conditions in October, 71 sites were sampled including 59 monitoring wells, 3 piezometers, and 9 extraction wells. The laboratories analyzed the samples for metals, phosphorus, and other parameters. Sampling was conducted to capture baseline data across the site that reflects the conditions of groundwater quality following stabilization of hydrogeologic conditions to full GCS pumping operations and to characterize groundwater quality at the A-4 Gypsum Impoundment. EPA and IDEQ are currently reviewing preliminary

data from the 2023 baseflow sampling event which will be evaluated in the 2023 Annual Groundwater Quality Report for OU 2. Water level monitoring continued through 2023 with approximately 60 in situ transducers installed across the site; water level data will also be incorporated into the Annual Report. The next water quality monitoring effort will be performed during high flow conditions around April/May 2024.

### Suspended Sediment

Suspended sediment sampling is conducted to obtain information regarding the amount and characteristics of sediment being transported at specific times and locations in the river system. The CDA Trust currently collects suspended sediment samples opportunistically by boat during high-flow events only. The river flow threshold criterion for conducting opportunistic sampling of suspended sediment is approximately 8,000 cubic feet per second (cfs) at Cataldo (USGS station 12413500). The Water Year (WY) 2023 flow at Cataldo met the threshold criterion and boat-based sampling and data collection were performed.

### Biological Resources

The USFWS conducted annual waterfowl surveys from early February to late April in Lower Basin floodplain wetlands, recording observations of waterfowl use and tundra swan mortalities during the spring migration.



*Photos Sarah Emeterio, USFWS*

In 2023, EPA scientists continued work with the CDA Tribal, state, federal, and local partners on a collaborative effort to monitor a migratory bird that relies on local resources for its survival, the Tundra Swan. As swans forage for rooted aquatic plants, they incidentally ingest contaminated sediment with lead concentrations that can be many times greater than the concentration considered safe for waterfowl. Lead contamination poses a health risk to these swans.

Waterfowl study planning also expanded to wood ducks in 2023, with field work to commence in 2024. Wood ducks' nest at Bunker Hill and forage shallower in the sediment on invertebrates and thus provide a different exposure indicator of Pb contamination than Tundra Swans. Utilizing monitoring of both these waterfowl species will provide tools for monitoring ecological health and remedial action effectiveness at area-wide and project-specific scales in the Lower Basin as well as provide information for project remedial design to ensure waterfowl most susceptible to lead exposure access clean areas preferentially instead of unremediated wetlands with high lead concentrations.



*Photos Sarah Emeterio, USFWS*

## *2023 Work Accomplishments Part 2: Other BEIPC Activities and Responsibilities*

### Lake Management Activities

The Coeur d'Alene Lake Management Plan (LMP), developed by the CDA Tribe and IDEQ, was finalized in 2009. Since then, the CDA Tribe and IDEQ have been implementing core aspects of the LMP such as water quality monitoring, modeling, nutrient source inventory, and education/outreach.

In 2018, the CDA Tribe asserted that the LMP has been inadequate, as implemented, as an effective tool to protect water quality in the Lake. The CDA Tribe withdrew their support of the LMP, as an alternative to a CERCLA remedy, in 2019. IDEQ continues to implement the LMP.

### National Academy of Sciences & Coeur d'Alene Lake Advisory Committee

In 2019, at the Our Gem Coeur d'Alene Lake Symposium, Idaho Governor Brad Little called for a neutral third-party review of Lake data to take a closer look at observed Lake water quality trends and guide actions to protect the Lake moving forward. In 2020, the State of Idaho, Kootenai County, and EPA sponsored a contract with the National Academy of Sciences, Engineering, and Medicine (NAS) to conduct this review of CDA Lake data. The final report was completed in 2022 (<https://www.nationalacademies.org/our-work/the-future-of-water-quality-in-coeur-dalene-lake>) and included a number of recommendations to help guide Lake management science activities into the future.

While the NAS review was underway, recognizing community concern that on-the-ground action needed to occur, Governor Little launched the Leading Idaho Initiative for CDA Lake. This initiative provided funding for projects throughout the Coeur d'Alene Basin intended to reduce phosphorus loading to CDA Lake. Between 2020 and 2021, \$33 million dollars was allocated for this purpose. Governor Little appointed the CDA Advisory Committee (CLAC) to prioritize projects proposed to receive this funding. Implementation of Leading Idaho projects is ongoing. The CLAC includes membership from the Coeur d'Alene Tribe, City of Coeur d'Alene, Kootenai County, Kootenai Environmental Alliance, Hagadone Marine, community business owners, a Coeur d'Alene lakeshore property owner, and members of the public at large.

Discussions among the CDA Tribe, IDEQ, and EPA related to NAS recommendations and future lake management activities are ongoing. Additionally, various aspects outlined in the LMP and listed below are essential to continue while additional approaches to augment work under the auspices of the LMP are being considered.

## IDEQ Lake Management Activities

IDEQ Lake management accomplishments in 2023 consisted of the following activities:

### Science Core Program

- Routine CDA Lake core monitoring.
- Coordination with AVISTA, the Idaho State Department of Agriculture (ISDA), and CDA Tribe staff on aquatic plant surveys and responses to infestations of aquatic invasive species.
- Conceptual model report development to describe the lake's structure and mixing. The current draft report incorporates river hydrography, IDEQ electronic sonde data from 2014 – 2019, lake wind fields, preliminary AEM3D modeling, and data from a stable isotope study from 2015 into a physical description and analysis of the lake's structure and mixing. Staff at IDEQ are incorporating edits from an expert review of the draft. A final report is expected in 2024.
- Initiated development of a Science Coordination Team (SCT) to address recommendations from the NAS review report. The SCT directly addresses the NAS recommendation for better coordination of basin science efforts. The team is also helping facilitate an EPA-led initiative to get better transparency/access to basin data by the public. The SCT will play a key role in evaluating the remaining NAS recommendations and ways to implement them.
- Tested a pilot monitoring approach targeting the NAS recommendation for increased bay/littoral data collection.

### Education & Outreach Core Program Activities

- Provided updates on Lake management activities for a variety of community groups and the public.
- Participated in The Confluence Project (TCP) steering committee, teacher workshops, classroom activities, and field trips for high school students (including the Youth Water Summit).
- Participated in the Our Gem Coeur d'Alene Lake Collaborative (OG Collab), providing regular articles to the CDA Press related to CDA Lake, including Leading Idaho information and updates.
- Provided Leading Idaho updates to the CLAC.
- Participated in the Local Gems program through the Coeur d'Alene Regional Chamber of Commerce Natural Resource Committee.
- Coordinated with the Bay Watchers program, organized by the U of I through the Idaho Water Resource Research Institute, exploring ways to expand volunteer monitoring.



- Participated on the Panhandle Stormwater and Erosion Education Program (SEEP) steering committee and assisted in delivering educational programming related to water quality to the construction/development community.

#### Nutrient Inventory/Reduction

- Began compiling and analyzing tributary data collected for 11 tributaries and 10 smaller drainages to CDA Lake. This water quality data was collected to fill data gaps identified in the basin-wide nutrient inventory report. It also addresses the NAS recommendation to better understand the inputs of nutrients from lakeshore tributaries.
- Coordinated with EPA staff to include phosphorus analysis in the Lower CDA River high river flow events study targeting suspended sediment sample collection. This data will be used to update the nutrient inventory analysis for the CDA River.
- Developed a subaward agreement with the CDA Tribe to fill data gaps in tributaries to the southern end of CDA Lake, including the St. Joe and St. Maries Rivers. This is supported through Governor Little's Leading Idaho Initiative.
- Worked with recipients of Governor Little's Leading Idaho Initiative funding to implement projects throughout the basin to reduce phosphorus loading to CDA Lake. Project implementation began in 2021 and continued through 2023.

#### Partnerships with Other Entities

- Following recommendations of the NAS review report, worked with Alta Science and Engineering to convene a Coeur d'Alene Basin Science Coordination Team (SCT) to begin tackling basin-wide science questions related to CDA Lake. The SCT is comprised of scientists from IDEQ, the CDA Tribe, USGS, the EPA, and the University of Idaho.
- Coordinated with AVISTA Corp to identify and prioritize projects to enhance wetland habitat, reduce stream/riverbank erosion, and improve fisheries throughout the Basin, in addition to monitoring aquatic invasive species in CDA Lake and tributary rivers.
- Participated in the Coeur d'Alene Regional Chamber of Commerce Natural Resource Committee, the OG Collab, Panhandle SEEP, the 4-County Natural Resource Committee, and other groups focused on water quality protection to facilitate communication and collaboration.
- Facilitated and participated in Panhandle Basin Advisory Group meetings.
- Organized/participated in Watershed Advisory Group meetings for the North and South Fork Coeur d'Alene River watersheds.
- Facilitated meetings of the CDA Lake Advisory Committee (CLAC) to review and select projects to receive funding from Governor Little's Leading Idaho Initiative for CDA Lake.

- Coordinated with EPA staff to include phosphorus analysis in the Lower CDA River high river flow events study targeting suspended sediment sample collection.
- Worked with the BEIPC Executive Director to provide Lake activity updates for the BEIPC.

This continued level of coordination with BEIPC forums maximizes opportunities for information exchange and advice, while recognizing that IDEQ retains its respective decision-making authorities.

### **Coeur d’Alene Tribe Lake Activities**

Tribal staff worked with IDEQ to assess the NAS priorities moving forward and worked with the CDA Lake Advisory Committee on ranking projects that were submitted from numerous stakeholders in the Basin. In 2023, the Tribe was awarded ARPA funding to initiate the implementation of the St. Joe Watershed Nutrient Assessment project through the end of 2025.

Discussions among the CDA Tribe, IDEQ and EPA have continued in order to determine what additional mechanisms/actions are needed to manage the hazardous materials in the lakebed sediments. Therefore, although various aspects outlined in the LMP and listed below are essential to continue, additional approaches to augment work conducted under the auspices of the LMP are being reconsidered by the Tribe. These discussions are ongoing.

CDA Tribal Lake Activity accomplishments in 2023 consisted of the following staff activities:

#### Science Core Program

- Routine Lake water quality monitoring and modeling by the Tribe continued through 2023.
- Tribal staff continued their milfoil control program in southern waters during 2023, including bottom barrier and mechanical harvester treatments. The Tribe has also continued to monitor treatment efficacies and native plant community dynamics. Control efforts are focused at high-use public sites such as boat launches, swim areas, and boating lanes. Mechanical harvesting is used to remove nuisance aquatic vegetation from high-use sites at Benewah Lake, Chatcolet Lake, and Round Lake. Harvesting also helps remove an oversupply of nutrients from nearshore areas. The Tribe removed approximately 210,849 lbs. (wet mass) of aquatic vegetation in the summer of 2023, which translates to 83 lbs. (dry mass) of phosphorus and 417 lbs. (dry mass) of nitrogen.

#### Education & Outreach Core Program

- Throughout 2023, Tribal staff provided updates on Lake activities to a variety of community groups and made presentations to the public upon request.

- In 2023, Tribal staff worked with the Confluence Project (TCP) and Coeur d’Alene Basin high school science classes with hands on based research on water quality, groundwater, and snow water equivalency which included science field trips for high school students and teachers in North Idaho.
- The Our Gem CDA Lake Collaborative (Collaborative) worked throughout 2023 to provide regular articles in the CDA Press related to CDA Lake and water quality conditions to keep this subject present in the community. For more information on the articles and to watch the recorded Speaker Series visit: <https://www.uidaho.edu/cda/cwrc/our-gem>. The Collaborative is made up of the Tribe, IDEQ, U of I Community Water Resource Center (CWRC), Kootenai County, Connect Kootenai, the BEIPC, and the Coeur d’Alene Regional Chamber of Commerce.
- Tribal staff continued to work with the CDA Regional Chamber of Commerce Natural Resource Committee to implement the “Local Gems” program.
- Tribal staff continued to collaborate with the U of I IWRRRI and agency partners to conduct Baywatchers workshops for CDA Lake Bay community involving volunteers/liaisons utilizing combined virtual and in-person meetings.

#### *Lake and River Water Quality Sampling 2023*

- Tribal staff continued to sample from the CDA River at Harrison, St. Joe River, Chatcolet Lake, and CDA Lake sampling locations.
- Tribal staff continued data analysis and writing the water quality reports for CDA Lake and the Tribe’s Limnologist continued calibration of the AEM3D CDA Lake model.

#### *Partnerships with Other Entities*

- Tribal staff continued to be involved in the Panhandle Basin Northfork and Southfork CDA River Advisory Group meetings as well as the Basin Advisory Group.
- Tribal staff worked with the BEIPC ED to provide Lake updates to the BEIPC during quarterly meetings upon request.
- Tribal staff continued coordination with local governmental entities and CDA Regional Chamber of Commerce Natural Resources Committee.

This continued level of coordination with BEIPC forums maximizes opportunities for information exchange and advice, while recognizing that the CDA Tribe retains their decision-making authorities.

### Restoration Partnership

The Restoration Partnership (RP) is a collaborative effort comprising the Coeur d'Alene Basin Natural Resource Trustees which are the U.S. Department of the Interior, represented by the U.S. Fish and Wildlife Service (USFWS) and Bureau of Land Management (BLM); the Coeur d'Alene Tribe (Tribe); the U.S. Department of Agriculture, represented by the U.S. Forest Service (USFS); and the State of Idaho, represented by the Idaho Department of Fish and Game (IDFG) and Idaho Department of Environmental Quality (IDEQ). The RP's primary mission is to implement a restoration plan to help restore the health, productivity, and diversity of injured natural resources from releases of mine waste contamination and the services they provide in the Coeur d'Alene Basin for present and future generations. This includes compensation for lost human use services of those resources by developing and implementing projects under the framework of a Restoration Plan for the Coeur d'Alene Basin.

The following RP activities occurred throughout 2023:

- RP continued support for ongoing operations and maintenance by USFWS, Ducks Unlimited (D.U.), and private landowners for wetlands at the Schlepp Agriculture to Wetlands Conversion Project. The construction and implementation of this restoration project has been completed and O & M is underway. For more information visit: <https://www.restorationpartnership.org/projects/schlepp.html>.
- The Trustees coordinated quarterly reporting and site visits with the Project Sponsors and Project Leads as appropriate throughout 2023.

Implementation of the following projects continued in 2023 and the expenditures for 2023 for each are noted with a brief narrative of work that was completed.

- **Wetland and stream enhancement at Cougar Bay on Coeur d'Alene Lake (BLM and USFWS sponsors)**
  - Funds Originally Allocated in 2018 and 2019 on Cougar and Johnson parcel jointly: \$407,000.
  - Amount Expended in 2023: \$8,000.
  - Activities: 1) Culvert replacement to help the new channel handle larger spring flows and improve a short stretch of stream channel, 2) Bank improvements also were completed downstream and channel banks in the upper reach were laid back to better mimic natural point bars, 3) Noxious weed treatments to slow the invasion of reed canary grass into the floodplain and streamside areas and, 4) 750 one-gallon riparian plants were planted including water birch, pacific ninebark, black cottonwood, willows and elderberry.



*New channel of Cougar Creek looking south. Photo courtesy of BLM.*

- **Guł Hnch'mchinmsh - Native Willow Nursery for Support of Restoration Actions throughout the Restoration Partnership Project Area (Tribe sponsor)**
  - Funds Originally Allocated in 2018: \$205,462.
  - Amount Expended in 2023: \$1,470.
  - Activities: 1) Coeur d'Alene Tribal staff provided survey information on potential harvest opportunities for the Tribe and the partnership, 2) Staff mowed reed canary grass to keep the rows of willows visible and accessible, 3) Allocations of willow harvest were determined and the numbers were shared with other RP sponsored projects and, 4) Coordination of harvest times was ongoing.
- **Culturally Significant Plants in the Hangman Creek (Tribe sponsor)**
  - Funds Originally Allocated in 2018: \$187,770.
  - Amount Expended in 2023: \$27,291.
  - Activities: 1) Tribal staff focused efforts to bring on Tribal interns to continue monitoring plant success rates as well as planting efforts and, 2) Staff completed beaver surveys and dam reinforcements as well as installed plant protectors.
- **Coeur d'Alene Lake Monitoring and Modeling (Tribe sponsor)**
  - Funds Originally Allocated in 2018: \$268,668.
  - Amount Expended in 2023: \$48,884.



- Activities: 1) Collected and analyzed water quality samples from 4 sites over an eight-month period as other Tribal budgets were used for the other sampling events, 2) Continued data analysis and writing the synthesis report for Coeur d'Alene Lake, and 3) Continued calibration of the AEM3D model and reporting to the NAS.
- **Hepton Lake (Gul Hnch'mchinmsh) Wetland Restoration Planning and Implementation (Tribe sponsor)**
  - Funds Originally Allocated in 2018: \$ 210,900 and \$85,332 from remaining funds from the Cultural Harvest opportunities in the Hangman Creek Watershed.
  - Amount Expended in 2023: \$145,932.
  - Activities: 1) Tribal staff issued a Request for Proposals for a contractor to complete winter-time construction of the levee breach during low water, 2) Water level management was ongoing and construction supplies were staged for FY24 construction, and 3) Cost share funds were applied to this project for habitat restoration.
- **Wetlands restoration planning at Gray's Meadow (IDFG sponsor)**
  - Funds Originally Allocated in 2018 \$ 250,000 (remedial match provided by the Work Trust, \$5.2 M).
  - Amount Expended in 2023: \$384,735.
  - Activities: 1) Nesting bird surveys occurred during construction activities, 2) Water level management was ongoing during construction and, 3) IDFG continued ongoing coordination with EPA and the CDA Trust throughout construction.
- **Gene Day Pond Fishing Access (IDFG sponsor)**
  - Funds Originally Allocated in 2018: \$25,000.
  - Amount Expended in 2023: \$7,500.
  - Activities: 1) Parking area was graveled and traffic control boulders placed around the perimeter and, 2) Concrete pad pouring and final site close out planned for FY24.
- **Conservation Easement, North Fork Coeur d'Alene River (IDFG sponsor)**
  - Funds Originally Allocated in 2021: \$600,000.
  - Amount Expended in 2023: \$0.

- Activities: IDFG coordinated efforts between the landowner and local Land Trust on potential conservation easement (C.E.) opportunities considering permanent protection of natural floodplain communities and cold water hyporheic flow.
- **Conservation of Agricultural to Wetlands Conversion Properties within Canyon Marsh (USFWS sponsor with the Inland Northwest Land Conservancy (INLC))**
  - Funds Originally Allocated in 2018 \$801,480 and in 2019 \$372,400.
  - Amount Expended in 2023: \$18,310.
  - Activities: 1) USFWS staff coordinated the development of the Scope of Work for the site with the collection of topographic, hydrologic, and soil agronomic data, 2) Through the cooperative agreement, DU is working collaboratively with project partners to develop a conceptual wetland restoration plan that will serve as the idealized vision for future remediation/restoration design and implementation, and 3) Another important goal is that any data that is collected will complement (and not duplicate) any data that EPA, the Coeur d'Alene Trust, or other partners collect for remedial investigations.
- **Conservation of Agricultural to Wetlands Conversion Property Gleason's Marsh (USFWS sponsor with INLC)**
  - Funds Originally Allocated in 2018: \$656,140.
  - Amount Expended in 2023: \$9,000.
  - Activities: 1) USFWS staff worked with the Inland Northwest Land Conservancy (INLC) to develop a baseline resource reports along with other administrative documents for the C.E and, 2) USFWS worked with EPA on remedial investigations with remediation planned for 2025 and 2026.
- **Lake Creek Watershed Restoration (CDA Tribe sponsor)**
  - Funds Originally Allocated in 2021: \$615,951.
  - Amount Expended in 2023: \$58,682.
  - Activities: 1) Tribal staff and their contractor completed final design for channel restoration on multiple properties in the upper Lake Creek watershed in Idaho, 2) Tribal staff met with private landowners to review design objectives and expected outcomes where the design creates channel grade and profiles within the range of historical conditions when beaver was a predominant factor in shaping the valley bottom landscape, 3) Tribal staff submitted Clean Water Act Section 404 permit application to US Army Corps of Engineers, 4) Staff completed the cultural resource inventory that are

targeted for restoration 2024 and, 5) Staged native materials for habitat enhancement features along the riparian areas of Lake Creek which will add additional habitat for culturally important plants.

- **Prichard Creek Phase I: Conservation Easement and Restoration Planning (IDEQ sponsor with Idaho Forest Group and Trout Unlimited)**
  - Funds Originally Allocated in 2021: \$3,808,450.
  - Amount Expended in 2023: \$460,019.
  - Activities: 1) DEQ along with Idaho Forest Group (the landowner) and Trout Unlimited installed large woody debris structures to support stream access to the original floodplain in the upstream reaches (see photo below), 2) Native willows from the Tribe's willow nursery were planted and, 3) The next phases of restoration implementation were ongoing.
- **Red Ives Phase I Dam Removal Complete, started Phase II Planning (USFS sponsor)**
  - Funds Originally Allocated in 2019: \$30,000.
  - Amount Expended in 2023: \$180,310.
  - Activities: 1) USFS staff worked with TU in the placement of large woody debris for habitat diversification, enhancement, and floodplain connectivity, and 2) USFS staff worked with numerous partners for cost share funding on bull trout recovery efforts.

**Total Funds Expended in 2023: \$1,342,633.**

- The full annual reports can be found on the website at [www.restorationpartnership.org](http://www.restorationpartnership.org).

In 2023, the RP solicited the public for Project Ideas and 16 were submitted, 3 did not meet the RP Eligibility Criteria and 3 withdrew their project ideas. The Trustees awarded funding for 10 new (or ongoing projects) for initiation of implementation to begin in 2024. Those projects are: 1) Restore fish passage and ecosystem function in Miesen Creek along the St. Joe River- IDFG sponsor, 2) Benewah Creek 'eltumish Project - Stream/Wetland Restoration- Tribe sponsor, 3) Lake Creek conservation Easement with INLC and private landowner- Tribe sponsor, 4) Big Creek Fish Passage Barrier Removal with Sunshine Mine- Tribe sponsor, 5) Upper St. Joe River Bull Trout Habitat Restoration- USFS sponsor, 6) Little North Fork Coeur d'Alene River Watershed Enhancement- USFS sponsor, 7) Beaver Creek Phased Watershed Enhancement- USFS sponsor, 8) Assessing Fish Passage at Stream Crossings in the CDA Basin- IDFG sponsor, 9) CDA Lake Monitoring and Modeling- CDA Tribe sponsor, and 10) The paleolimnology CDA Lake from pre-disturbance to mining impacts and present day- CDA Tribe sponsor (no funding awarded at this time).



*Aerial photo of large woody debris placements in upper Prichard Creek. Photo courtesy of Idaho Forest Group.*

## *Challenges Ahead*

A great deal of work was accomplished across the Upper and Lower Basin in 2023. The cleanup and restoration efforts were focused on remediation of human health risks resulting from contaminated residential and commercial properties. This included extensive work by the CDA Trust in the EFN M Creek and Canyon Creek drainages and the Lower Basin that addressed ecological remedies and related human health issues. The EPA directed work to address the contaminated groundwater problems and mine discharges in OU-2 noted in the Upper Basin RODA. Human health related projects continue to be a priority with an additional focus on cleanup work in fish and wildlife habitat areas, and water quality improvements. The Restoration Partnership also continued moving forward with implementation of natural resource restoration actions in the Basin.

In addition to the work in the Upper Basin, the involved governments and agencies continue to develop project proposals to address Lower Basin human health and ecological issues. Because the CDA River system contains millions of tons of contaminated sediments, a portion of which is moving downstream every year, recontamination from annual flooding is a major concern for any project planned in the Lower Basin.

Major challenges ahead include:

- Development of any needed additional waste repositories and consolidation areas for disposal of remedial action and ICP wastes.
- Continued implementation of the RODA for the Upper Basin and OU-3 ROD for the Lower Basin.
- Development of a solution to major flooding issues in Lower Pine Creek, SFCDR and Main Stem of the CDA River.
- Continued coordination with the CDA Tribe and State's efforts to address CDA Lake management issues.

The ASARCO bankruptcy settlement continues to be the major source of funding for the environmental remediation actions in the Basin. Careful management will ensure that actions working to implement the Upper Basin RODA, Lower Basin OU-3 ROD, and any additional needed amendments will have funds available for the work that needs to be done. Additional funding will be needed to carry on remedial actions in the Box because funds from the ASARCO settlement cannot be used in the Box. Assuring sustainable funding intended to advance cleanup as planned continues to represent a significant challenge into the future.